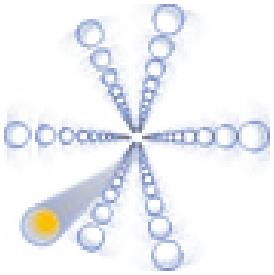

Contribution ID: **115** Type: **Poster**

PS3-16 Combination (Raman) Scattering Photons by the Channeling Particles

Thursday, 9 October 2014 17:00 (1h 30m)

The channeling particles is characterized by the bound quantum states of its transversal motion. Photon interactions with the channeling particles in a single crystal may be accompanied by the energy transitions between the transverse motion levels of channeling particles. The photon combination (Raman) scattering by the quasi-bound channeling particles leads to the appearance of a frequency combination of the incident photon frequency ω_0 and the frequency Δ ω_if , i.e.
ω = ω_0±Δ ω_if ,
where Δ ω_if= 〖ΔE〗 _ifγ; 〖ΔE〗 _if is the transition energy between “i”and “f”transversal motion quantum states; γ = E/(mc^2) is the channeling particles Lorentz –factor. A “violet”satellite (“anti-Stokes”lines ω) analysis in the Raman combination scattering spectrum is suggested. Resonance conditions for observation of the second harmonics (ω = 2ω_0) is discussed.

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Session Classification: Poster Session